Format No: CP/TF/01

## TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

| | | |
|---|---|---|
| **Lab ID** | : | **CP-2019-05-14-34** **Date: 21-02-19** |
| **Customer** | : | Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Improvements to Roads and Drains at Hosbalunagara Cross Roads in Ward No.11 Kuvempunagara. |
| **Agency** | : | Executive Engineer,K.R.I.D.L,#280,59th Cross Road, 17th C Main Road,3rd Y Block,Rajajinagara,Bangalore-560010. |
| **Customer's Reference** | : | BBMP/EE/BTP/WO/31/2017-18 |
| **Source of Sample** | : | Sample supplied by Agency |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 19-02-19 |
| **Sample Type** | : | Birla Super 53grade |
| **Reference to BIS codes** | : | IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification ,<br>IS 4031 (Part 1,2 3,4,5, 6,11):1988<br>IS 4031 Part 1 DETERMINATION OF FINENESS BY DRY SIEVING, Clause 4.4<br>IS 4031 Part 2, Determination of Fineness by Blaine Air Permeability Method, Clause 5<br>IS 4031 Part 3, Determination of Soundness, Clause 5,Clause 6<br>IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5<br>IS 4031 Part 5, Determination of Initial & Final Setting Time, Clause 5<br>IS 4031 Part 11,DETERMINATION OF DENSITY , Clause 6 |
| **Date of test** | : | 19-02-19 |
| **Environmental Conditions during test** | : | Temperature: 26°C<br>Humidity: 72% |

| Sl.No. | Physical properties | Results | Requirement as per IS 12269: 2013 |
|---|---|---|---|
| 1 | Fineness by dry sieving (%) | 1.72 | _ |
| 2 | Finess by Air permeablity method ($m^2$/kg,Min) | 298.4 | 225$m^2$/kg, Min |
| 3 | Density (gm/cc) | 3.13 | _ |
| 4 | Standard Consistency (%) | 29.5% | Not specified |
| 5 | Initial Setting time | 155 minutes | Not less than 30 minutes |
| 6 | Final Setting time | 285 minutes | Not more than 600 minutes |
| 7 | Soundness (Le Chatelier's Method) | 1.5mm | Not more than 10 mm |

**Note:**

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All information furnished by Customer/Representative

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A.E.E. (W.R.)

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**R KARTHIK RECHAN**
Authorized Signatory
**Quality Manager**

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## TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

| | | |
|---|---|---|
| **Lab ID** | : | **CP-2019-05-14-34** **Date: 19-03-19** |
| **Customer** | : | Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Improvements to Roads and Drains at Hosbalunagara Cross Roads in Ward No.11 Kuvempunagara. |
| **Agency** | : | Executive Engineer,K.R.I.D.L,#280,59th Cross Road, 17th C Main Road,3rd Y Block,Rajajinagara,Bangalore-560010. |
| **Customer's Reference** | : | BBMP/EE/BTP/WO/31/2017-18 |
| **Source of Sample** | : | Sample supplied by Agency |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 19-02-19 |
| **Sample Type** | : | Birla Super 53grade |
| **Reference to BIS codes** | : | IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification ,<br>IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5<br>IS 4031 Part 6, Determination of Compressive Strength, Clause 6 |
| **Date of test** | : | 19-02-19 |
| **Environmental Conditions during test** | : | Temperature: 26°C<br>Humidity: 72% |

**Compressive Strength**

| Sl.No. | Physical properties | Results | Requirement as per IS 12269: 2013 |
|---|---|---|---|
| 1 | 3 Days | 29.5N/mm$^2$ | Not less than 27 N/mm$^2$ |
| 2 | 7 Days | 39.5N/mm$^2$ | Not less than 37 N/mm$^2$ |
| 3 | 28 Days | 55.5N/mm$^2$ | Not less than 53 N/mm$^2$ |

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**R KARTHIK RECHAN**
Authorized Signatory
**Quality Manager**

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## TEST REPORT ON COARSE AGGREGATES

| | | |
|---|---|---|
| **Lab ID** | : | **CP-2019-05-14-34** **Date: 21-02-19** |
| **Customer** | : | Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Improvements to Roads and Drains at Hosbalunagara Cross Roads in Ward No.11 Kuvempunagara. |
| **Agency** | : | Executive Engineer,K.R.I.D.L,#280,59th Cross Road, 17th C Main Road,3rd Y Block,Rajajinagara,Bangalore-560010. |
| **Customer's Reference** | : | BBMP/EE/BTP/WO/31/2017-18 |
| **Source of Sample** | : | Sample supplied by Agency |
| **Sample condition** | : | Satisfactory |
| **Date of Receipt** | : | 19-02-19 |
| **Sample Type** | : | 40mm down size coarse aggregate |
| **Reference to BIS codes** | : | IS: 383:2016 (Specification for Coarse and fine Aggregates )<br>IS: 2386 :1963(Part - 1,3,4) RA2011<br>IS 2386 Part 1: Particle Size and Shape<br>IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption<br>IS 2386 Part 4: Mechanical Properties |
| **Date of test** | : | 18-02-19 |

**SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 40MM DOWN COARSE AGGREGATE:**

**Total weight taken : 15000 grams**

| Sample No. | Sieve No. | Weight Retained in gms | Cumulative Weight Retained in gms | % Cumulative Weight Retained | % Passing | Required as per IS 383:2016 |
|---|---|---|---|---|---|---|
| 1 | 80 mm | 0 | 0 | 0.0 | 100 | 100 |
| 2 | 40 mm | 355 | 355 | 2.4 | 97.6 | 90-100 |
| 3 | 20 mm | 7102 | 7457 | 49.7 | 50.3 | 30-70 |
| 4 | 10 mm | 4989 | 12446 | 83.0 | 17.0 | 10-35 |
| 5 | 4.75 mm | 2218 | 14664 | 97.8 | 2.2 | 0-5 |
| 6 | Pan | 336 | 15000 | 100.0 | 0 | --- |



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## TEST REPORT ON COARSE AGGREGATES

**Lab ID** : **CP-2019-05-14-34** **Date: 21-02-19**

**PHYSICAL PROPERTIES**

| Sl.no | Tests | Result | Requirements as per IS:383-2016 |
|---|---|---|---|
| 1 | Flakiness Index(%) | 14.1 | Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate |
| 2 | Elongation Index(%) | 10.9 | |
| 3 | Specific Gravity | 2.64 | – |
| 4 | Bulk Density(Loose) (Kg/l) | 1.38 | – |
| 5 | Bulk Density(Compacted) (Kg/l) | 1.45 | – |
| 6 | Water Absorption(%) | 0.25 | – |

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Authorized Signatory
**Quality Manager**

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## TEST REPORT ON COARSE AGGREGATES

| | | |
|---|---|---|
| **Lab ID** | : | **CP-2019-05-14-34** **Date: 20-02-19** |
| **Customer** | : | Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Vidyaranyapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Improvements to Roads and Drains at Hosbalunagara Cross Roads in Ward No.11 Kuvempunagara. |
| **Agency** | : | Executive Engineer,K.R.I.D.L,#280,59th Cross Road, 17th C Main Road,3rd Y Block,Rajajinagara,Bangalore-560010. |
| **Customer Reference** | : | BBMP/EE/BTP/WO/31/2017-18 |
| **Source of Sample** | : | Sample supplied by Agency |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 19-02-19 |
| **Sample Type/ Size** | : | 20mm down size coarse aggregate |
| **Reference to BIS codes** | : | IS: 383:2016 (Specification for Coarse and fine Aggregates )<br>IS: 2386 :1963(Part - 1,3,4) RA2011<br>IS 2386 Part 1: Particle Size and Shape<br>IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption<br>IS 2386 Part 4: Mechanical Properties |
| **Date of test** | : | 18-02-19 |

**SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 20MM DOWN COARSE AGGREGATE:**

**Total weight taken : 5000 grams**

| Sample No. | Sieve No. | Weight Retained in gms | Cumulative Weight Retained in gms | % Cumulative Weight Retained | % Passing | Required as per IS 383:2016 |
|---|---|---|---|---|---|---|
| 1 | 40 mm | 0 | 0 | 0 | 100 | 100 |
| 2 | 20 mm | 310 | 310 | 6.2 | 93.8 | 90-100 |
| 3 | 10 mm | 3042 | 3352 | 67.0 | 33.0 | 25-55 |
| 4 | 4.75 mm | 1515 | 4867 | 97.3 | 2.7 | 0-10 |
| 5 | Pan | 133 | 5000 | 100 | 0 | – |



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## TEST REPORT ON COARSE AGGREGATES

**Lab ID** : **CP-2019-05-14-34** **Date: 20-02-19**

### PHYSICAL PROPERTIES

| Sl.no | Tests | Result | Requirements as per IS:383-2016 |
|---|---|---|---|
| 1 | Flakiness Index(%) | 13.7 | Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate |
| 2 | Elongation Index(%) | 12.5 | |
| 3 | Specific Gravity | 2.62 | – |
| 4 | Bulk Density(Loose) (Kg/l) | 1.41 | – |
| 5 | Bulk Density(Compacted) (Kg/l) | 1.48 | – |
| 6 | Water Absorption(%) | 0.29 | – |
| 7 | Aggregate crushing Value(%) | 23.5 | Max 30% for Aggregates to be used in concrete for wearing Surface, In case Aggregate Crushing Value Exceeds 30% then the test for ten percent fines should be conducted for Aggregates to be used in concrete other than for wearing Surface. |
| 8 | Aggregate Impact Value(%) | 21.4 | 30% for Aggregates to be used in concrete for wearing Surface,<br>45% for Aggregates to be used in concrete other than for wearing Surface. |

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Authorized Signature
**Quality Manager**

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# TEST REPORT OF FINE AGGREGATE

**Lab ID** : **CP-2019-05-14-34** **Date: 20-02-19**

**Customer** : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

**Address** : Vidyaranyapura Sub Division, BBMP, Bangalore.

**Project Name** : Improvements to Roads and Drains at Hosbalunagara Cross Roads in Ward No.11 Kuvempunagara.

**Agency** : Executive Engineer,K.R.I.D.L,#280,59th Cross Road, 17th C Main Road,3rd Y Block,Rajajinagara,Bangalore-560010.

**Customer's Reference** : BBMP/EE/BTP/WO/31/2017-18

**Source of Sample** : Sample supplied by Agency

**Sample Condition** : Satisfactory

**Date of Receipt** : 19-02-19

**Sample Type** : Fine Aggregate

**Reference to BIS codes** : IS 383 : 2016 (Specification for Coarse and fine Aggregates)
IS: 2386 :1963(Part - 1, 3) RA2012
IS 2386 Part 1: Particle Size and Shape
IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption

**Date of test** : 18-02-19

**Total weight taken** : 1000 grams

| Sl.no | Sieve Size | Weight Retained (gms) | Cumulative Weight Retained (gms) | % Cumulative Weight Retained | % Passing | Requirement as per IS 383:2016 | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Grading Zone I | Grading Zone II | Grading Zone III | Grading Zone IV |
| 1 | 10 mm | 0 | 0 | 0.0 | 100.0 | 100 | 100 | 100 | 100 |
| 2 | 4.75 mm | 32 | 32 | 3.2 | 96.8 | 90-100 | 90-100 | 90-100 | 95-100 |
| 3 | 2.36 mm | 121 | 153 | 15.3 | 84.7 | 60-95 | 75-100 | 85-100 | 95-100 |
| 4 | 1.18 mm | 199 | 352 | 35.2 | 64.8 | 30-70 | 55-90 | 75-100 | 90-100 |
| 5 | 600 micron | 222 | 574 | 57.4 | 42.6 | 15-34 | 35-59 | 60-79 | 80-100 |
| 6 | 300 micron | 219 | 793 | 79.3 | 20.7 | 5-20 | 8-30 | 12-40 | 15-50 |
| 7 | 150 micron | 152 | 945 | 94.5 | 5.5 | 0-10 | 0-10 | 0-10 | 0-15 |
| 8 | Pan | 55 | 1000 | 100.0 | 0.0 | --- | --- | --- | --- |

**Result :The tested Sample Conforms to Grading Zone II**



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# TEST REPORT OF FINE AGGREGATE

**Lab ID** : **CP-2019-05-14-34** **Date: 20-02-19**

**PHYSICAL PROPERTIES**

| Sl.no | Tests | Result | Requirements as per IS 383:2016 |
|---|---|---|---|
| 1 | Water Absorption(%) | 1.09 | – |
| 2 | Specific Gravity | 2.53 | – |
| 3 | Material finer than 75 micron(%) | 4.8 | Uncrushed fine Aggregate Max 3%, Crushed Fine aggregate Max 15%, Mixed Fine aggregate Max 12%, Manufactured Fine aggregate Max 10% |

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Authorized Signatory
**Quality Manager**

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# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2019-05-14-34** **Date: 04/03/2019**

**Customer** : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

**Address** : Vidyaranyapura Sub Division, BBMP, Bangalore.

**Project Name** : Improvements to Roads and Drains at Hosbalunagara Cross Roads in Ward No.11 Kuvempunagara.

**Agency** : Executive Engineer,K.R.I.D.L,#280,59th Cross Road, 17th C Main Road,3rd Y Block,Rajajinagara,Bangalore-560010.

**Customer's Reference** : BBMP/EE/BTP/WO/31/2017-18

**Source of Sample** : Sample supplied by Agency

**Sample Condition** : Satisfactory

**Date of Receipt** : 27-02-19

**Customer ID** : Cement Concrete Pavement

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 7 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 04/03/2019

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Cement Concrete Pavement | M20 | 25/02/2019 | 04/03/2019 | 151.23 X 149.42 X 150.13 | 22596 | **8.716** | 427.5 | 18.9 | 18.7 |
| 2 | Cement Concrete Pavement | M20 | 25/02/2019 | 04/03/2019 | 151.13 X 149.42 X 149.62 | 22583 | **8.244** | 418.9 | 18.5 | |
| 3 | Cement Concrete Pavement | M20 | 25/02/2019 | 04/03/2019 | 149.03 X 150.62 X 149.79 | 22447 | **8.092** | 415.7 | 18.5 | |

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Authorized Signatory
**Quality Manager**

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# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2019-05-14-34** **Date: 25/03/2019**

**Customer** : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

**Address** : Vidyaranyapura Sub Division, BBMP, Bangalore.

**Project Name** : Improvements to Roads and Drains at Hosbalunagara Cross Roads in Ward No.11 Kuvempunagara.

**Agency** : Executive Engineer,K.R.I.D.L,#280,59th Cross Road, 17th C Main Road,3rd Y Block,Rajajinagara,Bangalore-560010.

**Customer's Reference** : BBMP/EE/BTP/WO/31/2017-18

**Source of Sample** : Sample supplied by Agency

**Sample Condition** : Satisfactory

**Date of Receipt** : 27-02-19

**Customer ID** : Cement Concrete Pavement

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 28 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 25/03/2019

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Cement Concrete Pavement | M20 | 25/02/2019 | 25/03/2019 | 149.86 X 149.12 X 149.90 | 22347 | **8.976** | 525.1 | 23.5 | 23.0 |
| 2 | Cement Concrete Pavement | M20 | 25/02/2019 | 25/03/2019 | 151.73 X 149.12 X 151.41 | 22625 | **8.968** | 505.7 | 22.4 | |
| 3 | Cement Concrete Pavement | M20 | 25/02/2019 | 25/03/2019 | 151.92 X 149.30 X 150.84 | 22682 | **8.462** | 528.1 | 23.3 | |

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**Quality Manager**

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# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2019-05-14-34** **Date: 04/03/2019**

**Customer** : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

**Address** : Vidyaranyapura Sub Division, BBMP, Bangalore.

**Project Name** : Improvements to Roads and Drains at Hosbalunagara Cross Roads in Ward No.11 Kuvempunagara.

**Agency** : Executive Engineer,K.R.I.D.L,#280,59th Cross Road, 17th C Main Road,3rd Y Block,Rajajinagara,Bangalore-560010.

**Customer's Reference** : BBMP/EE/BTP/WO/31/2017-18

**Source of Sample** : Sample supplied by Agency

**Sample Condition** : Satisfactory

**Date of Receipt** : 27-02-19

**Customer ID** : Cement Concrete Pavement

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 7 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 04/03/2019

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Cement Concrete Pavement | M20 | 25/02/2019 | 04/03/2019 | 150.46 X 151.15 X 149.31 | 22743 | **8.716** | 414.7 | 18.2 | 18.6 |
| 2 | Cement Concrete Pavement | M20 | 25/02/2019 | 04/03/2019 | 150.71 X 151.36 X 150.38 | 22812 | **8.244** | 426.4 | 18.7 | |
| 3 | Cement Concrete Pavement | M20 | 25/02/2019 | 04/03/2019 | 151.61 X 151.39 X 151.10 | 22953 | **8.092** | 430.2 | 18.7 | |

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Authorized Signatory
**Quality Manager**

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# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2019-05-14-34** **Date: 25/03/2019**

**Customer** : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

**Address** : Vidyaranyapura Sub Division, BBMP, Bangalore.

**Project Name** : Improvements to Roads and Drains at Hosbalunagara Cross Roads in Ward No.11 Kuvempunagara.

**Agency** : Executive Engineer,K.R.I.D.L,#280,59th Cross Road, 17th C Main Road,3rd Y Block,Rajajinagara,Bangalore-560010.

**Customer's Reference** : BBMP/EE/BTP/WO/31/2017-18

**Source of Sample** : Sample supplied by Agency

**Sample Condition** : Satisfactory

**Date of Receipt** : 27-02-19

**Customer ID** : Cement Concrete Pavement

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 28 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 25/03/2019

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Cement Concrete Pavement | M20 | 25/02/2019 | 25/03/2019 | 151.06 X 150.17 X 151.17 | 22684 | **8.976** | 532.9 | 23.5 | 23.3 |
| 2 | Cement Concrete Pavement | M20 | 25/02/2019 | 25/03/2019 | 149.84 X 151.32 X 149.66 | 22673 | **8.968** | 512.7 | 22.6 | |
| 3 | Cement Concrete Pavement | M20 | 25/02/2019 | 25/03/2019 | 149.92 X 149.14 X 150.65 | 22358 | **8.462** | 533.1 | 23.8 | |

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AEE (VRP) SD

**FOR CIVIL Pro.**

**R KARTHIK RECHAN**
Authorized Signatory
**Quality Manager**

CIVIL Pro Sig..... Date..... BANGALORE


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Format No: CP/TF/01

# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2019-05-14-34** **Date: 04/03/2019**

**Customer** : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

**Address** : Vidyaranyapura Sub Division, BBMP, Bangalore.

**Project Name** : Improvements to Roads and Drains at Hosbalunagara Cross Roads in Ward No.11 Kuvempunagara.

**Agency** : Executive Engineer,K.R.I.D.L,#280,59th Cross Road, 17th C Main Road,3rd Y Block,Rajajinagara,Bangalore-560010.

**Customer's Reference** : BBMP/EE/BTP/WO/31/2017-18

**Source of Sample** : Sample supplied by Agency

**Sample Condition** : Satisfactory

**Date of Receipt** : 27-02-19

**Customer ID** : Cement Concrete Pavement

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 7 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 04/03/2019

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Cement Concrete Pavement | M20 | 25/02/2019 | 04/03/2019 | 150.22 X 151.96 X 149.07 | 22826 | **8.716** | 431.7 | 18.9 | 18.6 |
| 2 | Cement Concrete Pavement | M20 | 25/02/2019 | 04/03/2019 | 150.10 X 149.93 X 150.63 | 22504 | **8.244** | 423.6 | 18.8 | |
| 3 | Cement Concrete Pavement | M20 | 25/02/2019 | 04/03/2019 | 150.83 X 150.91 X 151.72 | 22761 | **8.092** | 409.8 | 18.0 | |

**Note:**

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Format No: CP/TF/01

# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2019-05-14-34** **Date: 25/03/2019**

**Customer** : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

**Address** : Vidyaranyapura Sub Division, BBMP, Bangalore.

**Project Name** : Improvements to Roads and Drains at Hosbalunagara Cross Roads in Ward No.11 Kuvempunagara.

**Agency** : Executive Engineer,K.R.I.D.L,#280,59th Cross Road, 17th C Main Road,3rd Y Block,Rajajinagara,Bangalore-560010.

**Customer's Reference** : BBMP/EE/BTP/WO/31/2017-18

**Source of Sample** : Sample supplied by Agency

**Sample Condition** : Satisfactory

**Date of Receipt** : 27-02-19

**Customer ID** : Cement Concrete Pavement

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 28 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 25/03/2019

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Cement Concrete Pavement | M20 | 25/02/2019 | 25/03/2019 | 149.68 X 151.94 X 149.56 | 22743 | **8.976** | 535.4 | 23.5 | |
| 2 | Cement Concrete Pavement | M20 | 25/02/2019 | 25/03/2019 | 150.50 X 151.62 X 149.54 | 22819 | **8.968** | 514.3 | 22.5 | 23.1 |
| 3 | Cement Concrete Pavement | M20 | 25/02/2019 | 25/03/2019 | 149.01 X 150.06 X 151.20 | 22359 | **8.462** | 516.5 | 23.1 | |

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**R KARTHIK RECHAN**
Authorized Signatory
**Quality Manager**

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# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2019-05-14-34** **Date: 05/03/2019**

**Customer** : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

**Address** : Vidyaranyapura Sub Division, BBMP, Bangalore.

**Project Name** : Improvements to Roads and Drains at Hosbalunagara Cross Roads in Ward No.11 Kuvempunagara.

**Agency** : Executive Engineer,K.R.I.D.L,#280,59th Cross Road, 17th C Main Road,3rd Y Block,Rajajinagara,Bangalore-560010.

**Customer's Reference** : BBMP/EE/BTP/WO/31/2017-18

**Source of Sample** : Sample supplied by Agency

**Sample Condition** : Satisfactory

**Date of Receipt** : 28-02-19

**Customer ID** : Cement Concrete Pavement

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 7 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 05/03/2019

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Cement Concrete Pavement | M20 | 26/02/2019 | 05/03/2019 | 149.73 X 150.83 X 149.75 | 22583 | **8.716** | 424.6 | 18.8 | 18.8 |
| 2 | Cement Concrete Pavement | M20 | 26/02/2019 | 05/03/2019 | 150.56 X 150.97 X 150.13 | 22730 | **8.244** | 430.7 | 18.9 | |
| 3 | Cement Concrete Pavement | M20 | 26/02/2019 | 05/03/2019 | 150.28 X 149.87 X 151.36 | 22522 | **8.092** | 418.0 | 18.6 | |

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**Quality Manager**

CIVIL Pro BANGALORE Sig..... Date.....


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# TEST REPORT OF CEMENT CONCRETE CUBES

| | | |
|---|---|---|
| | : | CP-2019-05-14-34 **Date: 26/03/2019** |
| | : | Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore. |
| | : | Vidyaranyapura Sub Division, BBMP, Bangalore. |
| Project Name | : | Improvements to Roads and Drains at Hosbalunagara Cross Roads in Ward No.11 Kuvempunagara. |
| Agency | : | Executive Engineer,K.R.I.D.L,#280,59th Cross Road, 17th C Main Road,3rd Y Block,Rajajinagara,Bangalore-560010. |
| Customer's Reference | : | BBMP/EE/BTP/WO/31/2017-18 |
| Source of Sample | : | Sample supplied by Agency |
| Sample Condition | : | Satisfactory |
| Date of Receipt | : | 28-02-19 |
| Customer ID | : | Cement Concrete Pavement |
| Sample Type /Size | : | 150X150X150 mm |
| Sample grade/Age | : | M20 / 28 Days Compressive Strength |
| Reference to BIS codes | : | IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5 |
| Date of test | : | 26/03/2019 |

| SL No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Cement Concrete Pavement | M20 | 26/02/2019 | 26/03/2019 | 149.67 X 149.08 X 151.00 | 22313 | 8.976 | 527.1 | 23.6 | 23.3 |
| 2 | Cement Concrete Pavement | M20 | 26/02/2019 | 26/03/2019 | 151.01 X 150.59 X 149.13 | 22741 | 8.968 | 515.1 | 22.7 | |
| 3 | Cement Concrete Pavement | M20 | 26/02/2019 | 26/03/2019 | 150.95 X 151.69 X 150.50 | 22897 | 8.462 | 543.0 | 23.7 | |

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**Quality Manager**

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Format No: CP/TF/01

# TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : **CP-2019-05-14-34** **Date: 05/03/2019**

Customer : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

Address : Vidyaranyapura Sub Division, BBMP, Bangalore.

Project Name : Improvements to Roads and Drains at Hosbalunagara Cross Roads in Ward No.11 Kuvempunagara.

Agency : Executive Engineer,K.R.I.D.L,#280,59th Cross Road, 17th C Main Road,3rd Y Block,Rajajinagara,Bangalore-560010.

Customer's Reference : BBMP/EE/BTP/WO/31/2017-18

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 28-02-19

Customer ID : Cement Concrete Pavement

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 7 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 05/03/2019

| SL No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Cement Concrete Pavement | M20 | 26/02/2019 | 05/03/2019 | 149.63 X 149.97 X 150.96 | 22440 | **8.716** | 407.5 | 18.2 | 18.4 |
| 2 | Cement Concrete Pavement | M20 | 26/02/2019 | 05/03/2019 | 150.27 X 151.00 X 151.66 | 22691 | **8.244** | 425.7 | 18.8 | |
| 3 | Cement Concrete Pavement | M20 | 26/02/2019 | 05/03/2019 | 149.20 X 150.74 X 151.18 | 22490 | **8.092** | 412.7 | 18.4 | |

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Quality Manager

CIVIL PRO BANGALORE Sig Date


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Format No: CP/TF/01

# TEST REPORT OF CEMENT CONCRETE CUBES

Date: 26/03/2019

| | | |
|---|---|---|
| [illegible] | : | CP-2019-05-14-34 |
| [illegible]tomer | : | Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore. |
| Address | : | Vidyaranyapura Sub Division, BBMP, Bangalore. |
| Project Name | : | Improvements to Roads and Drains at Hosbalunagara Cross Roads in Ward No.11 Kuvempunagara. |
| Agency | : | Executive Engineer,K.R.I.D.L,#280,59th Cross Road, 17th C Main Road,3rd Y Block,Rajajinagara,Bangalore-560010. |
| Customer's Reference | : | BBMP/EE/BTP/WO/31/2017-18 |
| Source of Sample | : | Sample supplied by Agency |
| Sample Condition | : | Satisfactory |
| Date of Receipt | : | 28-02-19 |
| Customer ID | : | Cement Concrete Pavement |
| Sample Type /Size | : | 150X150X150 mm |
| Sample grade/Age | : | M20 / 28 Days Compressive Strength |
| Reference to BIS codes | : | IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5 |
| Date of test | : | 26/03/2019 |

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Cement Concrete Pavement | M20 | 26/02/2019 | 26/03/2019 | 149.47 X 149.10 X 151.05 | 22285 | 8.976 | 527.0 | 23.6 | 23.4 |
| 2 | Cement Concrete Pavement | M20 | 26/02/2019 | 26/03/2019 | 150.46 X 150.86 X 149.29 | 22699 | 8.968 | 516.1 | 22.7 | |
| 3 | Cement Concrete Pavement | M20 | 26/02/2019 | 26/03/2019 | 151.02 X 150.16 X 149.12 | 22677 | 8.462 | 541.3 | 23.9 | |

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# TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : **CP-2019-05-14-34** **Date: 05/03/2019**

Customer : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

Address : Vidyaranyapura Sub Division, BBMP, Bangalore.

Project Name : Improvements to Roads and Drains at Hosbalunagara Cross Roads in Ward No.11 Kuvempunagara.

Agency : Executive Engineer,K.R.I.D.L,#280,59th Cross Road, 17th C Main Road,3rd Y Block,Rajajinagara,Bangalore-560010.

Customer's Reference : BBMP/EE/BTP/WO/31/2017-18

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 28-02-19

Customer ID : Cement Concrete Pavement

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 7 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 05/03/2019

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Cement Concrete Pavement | M20 | 26/02/2019 | 05/03/2019 | 151.79 X 151.82 X 149.22 | 23046 | **8.716** | 423.7 | 18.4 | 18.7 |
| 2 | Cement Concrete Pavement | M20 | 26/02/2019 | 05/03/2019 | 150.37 X 151.33 X 149.31 | 22756 | **8.244** | 429.1 | 18.9 | |
| 3 | Cement Concrete Pavement | M20 | 26/02/2019 | 05/03/2019 | 150.33 X 150.08 X 151.46 | 22561 | **8.092** | 428.6 | 19.0 | |

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Quality Manager

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# TEST REPORT OF CEMENT CONCRETE CUBES

| | | |
|---|---|---|
| | : | **CP-2019-05-14-34** **Date: 26/03/2019** |
| | : | Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore. |
| | : | Vidyaranyapura Sub Division, BBMP, Bangalore. |
| Project Name | : | Improvements to Roads and Drains at Hosbalunagara Cross Roads in Ward No.11 Kuvempunagara. |
| Agency | : | Executive Engineer,K.R.I.D.L,#280,59th Cross Road, 17th C Main Road,3rd Y Block,Rajajinagara,Bangalore-560010. |
| Customer's Reference | : | BBMP/EE/BTP/WO/31/2017-18 |
| Source of Sample | : | Sample supplied by Agency |
| Sample Condition | : | Satisfactory |
| Date of Receipt | : | 28-02-19 |
| Customer ID | : | Cement Concrete Pavement |
| Sample Type /Size | : | 150X150X150 mm |
| Sample grade/Age | : | M20 / 28 Days Compressive Strength |
| Reference to BIS codes | : | IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5 |
| Date of test | : | 26/03/2019 |

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Cement Concrete Pavement | M20 | 26/02/2019 | 26/03/2019 | 150.03 X 149.20 X 149.66 | 22385 | 8.976 | 536.8 | 24.0 | 23.1 |
| 2 | Cement Concrete Pavement | M20 | 26/02/2019 | 26/03/2019 | 149.87 X 150.28 X 150.85 | 22522 | 8.968 | 498.6 | 22.1 | |
| 3 | Cement Concrete Pavement | M20 | 26/02/2019 | 26/03/2019 | 151.27 X 150.47 X 150.61 | 22761 | 8.462 | 527.5 | 23.2 | |

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**Quality Manager**

CIVIL PRO Sig Date BANGALORE


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# TEST RESULTS OF GRADATION FOR GSB
## (IS 2386:(Part 1) 1963 (RA2011)

| | | | | |
|---|---|---|---|---|
| Lab ID | : | CP-2019-05-14-34 | **Date:** | 04-03-19 |
| Customer | : | Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore. | | |
| Address | : | Vidyaranyapura Sub Division, BBMP, Bangalore. | | |
| Project Name | : | Improvements to Roads and Drains at Hosbalunagara Cross Roads in Ward No.11 Kuvempunagara. | | |
| Agency | : | Executive Engineer,K.R.I.D.L.,#280,59th Cross Road, 17th C Main Road,3rd Y Block,Rajajinagara,Bangalore-560010. | | |
| Customer Reference | : | BBMP/EE/BTP/WO/31/2017-18 | | |
| Source of Sample | : | Sample supplied by Agency | | |
| Sample Condition | : | Satisfactory | | |
| Date of Receipt | : | 01-03-19 | | |
| Type of Mix | : | GSB (Granular Sub Base) | | |
| Date of test | : | 01-03-19 | | |
| Oven Dry Weight | : | 10000 | Grams | |

| IS Sieve Size(mm) | Weight Retained (gm) | Cumulative Weight Retained (gm) | % Cumulative Weight Retained | % Passing | Spec. Limit Vide Table 400.1 MORTH Specification |
|---|---|---|---|---|---|
| 75 | 0 | 0 | 0.0 | 100.0 | 100 |
| 53 | 996 | 996 | 10.0 | 90.0 | 80-100 |
| 26.5 | 1686 | 2682 | 26.8 | 73.2 | 55-90 |
| 9.5 | 1292 | 3974 | 39.7 | 60.3 | 35-65 |
| 4.75 | 1490 | 5464 | 54.6 | 45.4 | 25-55 |
| 2.36 | 1764 | 7228 | 72.3 | 27.7 | 20-40 |
| 0.425 | 1666 | 8894 | 88.9 | 11.1 | 10-25 |
| 0.075 | 896 | 9790 | 97.9 | 2.1 | 0-5 |

### TESTS ON FILLER SCREEN MATERIALS

| Sl no | Particulars | Test results | Spec.Limit Vide Table 400.2 MORTH Specification |
|---|---|---|---|
| 1 | Liquid Limit, % | 21.33% | Maximum 25 |
| 2 | Plasticity index, % | Non plastic | Maximum 6 |

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